

Serial Number: 10/049,773CRF Processing Date: 3/12/2002Edited by: AKVerified by: AK (STIC staff)**ENTERED**

- ☐ Changed a file from non-ASCII to ASCII
- ☐ Changed the margins in cases where the sequence text was "wrapped" down to the next line.
- ☐ Edited a format error in the Current Application Data section, specifically: _____
- ☐ Edited the Current Application Data section with the actual current number. The number inputted by the applicant was ☐ the prior application data; or ☐ other _____
- ☐ Added the mandatory heading and subheadings for "Current Application Data".
- ☐ Edited the "Number of Sequences" field. The applicant spelled out a number instead of using an integer.
- ☐ Changed the spelling of a mandatory field (the headings or subheadings), specifically: _____
- ☐ Corrected the SEQ ID NO when obviously incorrect. The sequence numbers that were edited were: _____
- ☐ Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID NO's edited: _____
- ☐ Corrected subheading placement. All responses must be on the same line as each subheading. If the applicant placed a response below the subheading, this was moved to its appropriate place.
- ☐ Inserted colons after headings/subheadings. Headings edited included: _____
- ☐ Deleted extra, invalid, headings used by an applicant, specifically: _____
- ☒ Deleted: ☐ non-ASCII "garbage" at the beginning/end of files; ☐ secretary initials/filename at end of file; ☐ page numbers throughout text; ☐ other invalid text, such as _____
- ☐ Inserted mandatory headings, specifically: _____
- ☐ Corrected an obvious error in the response, specifically: _____
- ☐ Edited identifiers where upper case is used but lower case is required, or vice versa.
- ☐ Corrected an error in the Number of Sequences field, specifically: _____
- ☐ A "Hard Page Break" code was inserted by the applicant. All occurrences had to be deleted.
- ☐ Deleted *ending* stop codon in amino acid sequences and adjusted the "(A)Length:" field accordingly (error due to a PatentIn bug). Sequences corrected: _____
- ☐ Other: _____

*Examiner: The above corrections must be communicated to the applicant in the first Office Action. DO NOT send a copy of this form.

3/1/95



RAW SEQUENCE LISTING

DATE: 03/12/2002

PATENT APPLICATION: US/10/049,743

TIME: 17:31:10

Input Set : A:\PTO.AMC.txt

Output Set: N:\CRF3\03122002\J049743.raw

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3 <110> APPLICANT: Brett P. Monia
4   Lex M. Cowsert
6 <120> TITLE OF INVENTION: ANTISENSE MODULATION OF PI3 KINASE P110 DELTA EXPRESSION
8 <130> FILE REFERENCE: RTSP-0234
C--> 10 <140> CURRENT APPLICATION NUMBER: US/10/049,743
C--> 11 <141> CURRENT FILING DATE: 2002-01-10
13 <150> PRIOR APPLICATION NUMBER: US 09/357,070
14 <151> PRIOR FILING DATE: 1999-07-19
16 <160> NUMBER OF SEQ ID NOS: 47
18 <210> SEQ ID NO: 1
19 <211> LENGTH: 3868
20 <212> TYPE: DNA
21 <213> ORGANISM: Homo sapiens
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24 <221> NAME/KEY: CDS
25 <222> LOCATION: (197)..(3331)
27 <400> SEQUENCE: 1
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30 taaggagtca ggccaggcg ggatgacact cattgattct aaagcatctt taatctgcc      120
32 ggcggagggg gctttgctgg tctttcttgg actattccag agaggacaac tgtcatctgg      180
34 gaagtaacaa cgcagg atg ccc cct ggg gtg gac tgc ccc atg gaa ttc      229
35           Met Pro Pro Gly Val Asp Cys Pro Met Glu Phe
36           1               5               10
38 tgg acc aag gag gag aat cag agc gtt gtg gtt gac ttc ctg ctg ccc      277
39 Trp Thr Lys Glu Glu Asn Gln Ser Val Val Val Asp Phe Leu Leu Pro
40           15               20               25
42 aca ggg gtc tac ctg aac ttc cct gtg tcc cgc aat gcc aac ctc agc      325
43 Thr Gly Val Tyr Leu Asn Phe Pro Val Ser Arg Asn Ala Asn Leu Ser
44           30               35               40
46 acc atc aag cag ctg ctg tgg cac cgc gcc cag tat gag ccg ctc ttc      373
47 Thr Ile Lys Gln Leu Leu Trp His Arg Ala Gln Tyr Glu Pro Leu Phe
48           45               50               55
50 cac atg ctc agt ggc ccc gag gcc tat gtg ttc acc tgc atc aac cag      421
51 His Met Leu Ser Gly Pro Glu Ala Tyr Val Phe Thr Cys Ile Asn Gln
52 60           65           70           75
54 aca gcg gag cag caa gag ctg gag gac gag caa cgg cgt ctg tgt gac      469
55 Thr Ala Glu Gln Gln Glu Leu Glu Asp Glu Gln Arg Arg Leu Cys Asp
56           80           85           90
58 gtg cag ccc ttc ctg ccc gtc ctg cgc ctg gtg gcc cgt gag ggc gac      517
59 Val Gln Pro Phe Leu Pro Val Leu Arg Leu Val Ala Arg Glu Gly Asp
60           95          100          105
63 cgc gtg aag aag ctc atc aac tca cag atc agc ctc ctc atc ggc aaa      565
64 Arg Val Lys Lys Leu Ile Asn Ser Gln Ile Ser Leu Leu Ile Gly Lys

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68	Gly Leu His Glu Phe Asp Ser Leu Cys Asp Pro Glu Val Asn Asp Phe			
69	125 130 135			
71	cgc gcc aag atg tgc caa ttc tgc gag gag gcg gcc gcc cgc cgg cag	661		
72	Arg Ala Lys Met Cys Gln Phe Cys Glu Glu Ala Ala Ala Arg Arg Gln			
73	140 145 150 155			
75	cag ctg ggc tgg gag gcc tgg ctg cag tac agt ttc ccc ctg cag ctg	709		
76	Gln Leu Gly Trp Glu Ala Trp Leu Gln Tyr Ser Phe Pro Leu Gln Leu			
77	160 165 170			
79	gag ccc tcg gct caa acc tgg ggg cct ggt acc ctg cgg ctc ccg aac	757		
80	Glu Pro Ser Ala Gln Thr Trp Gly Pro Gly Thr Leu Arg Leu Pro Asn			
81	175 180 185			
83	cgg gcc ctt ctg gtc aac gtt aag ttt gag ggc agc gag gag agc ttc	805		
84	Arg Ala Leu Leu Val Asn Val Lys Phe Glu Gly Ser Glu Glu Ser Phe			
85	190 195 200			
87	acc ttc cag gtg tcc acc aag gac gtg ccg ctg gcg ctg atg gcc tgt	853		
88	Thr Phe Gln Val Ser Thr Lys Asp Val Pro Leu Ala Leu Met Ala Cys			
89	205 210 215			
91	gcc ctg cgg aag aag gcc aca gtg ttc cgg cag ccg ctg gtg gag cag	901		
92	Ala Leu Arg Lys Lys Ala Thr Val Phe Arg Gln Pro Leu Val Glu Gln			
93	220 225 230 235			
95	ccg gaa gac tac acg ctg cag gtg aac ggc agg cat gag tac ctg tat	949		
96	Pro Glu Asp Tyr Thr Leu Gln Val Asn Gly Arg His Glu Tyr Leu Tyr			
97	240 245 250			
99	ggc agc tac ccg ctc tgc cag ttc cag tac atc tgc agc tgc ctg cac	997		
100	Gly Ser Tyr Pro Leu Cys Gln Phe Gln Tyr Ile Cys Ser Cys Leu His			
101	255 260 265			
103	agt ggg ttg acc cct cac ctg acc atg gtc cat tcc tcc tcc atc ctc	1045		
104	Ser Gly Leu Thr Pro His Leu Thr Met Val His Ser Ser Ser Ile Leu			
105	270 275 280			
107	gcc atg cgg gat gag cag agc aac cct gcc ccc cag gtc cag aaa ccg	1093		
108	Ala Met Arg Asp Glu Gln Ser Asn Pro Ala Pro Gln Val Gln Lys Pro			
109	285 290 295			
111	cgt gcc aaa cca cct ccc att cct gcg aag aag cct tcc tct gtg tcc	1141		
112	Arg Ala Lys Pro Pro Pro Ile Pro Ala Lys Lys Pro Ser Ser Val Ser			
113	300 305 310 315			
115	ctg tgg tcc ctg gag cag ccg ttc cgc atc gag ctc atc cag ggc agc	1189		
116	Leu Trp Ser Leu Glu Gln Pro Phe Arg Ile Glu Leu Ile Gln Gly Ser			
117	320 325 330			
119	aaa gtg aac gcc gac gag cgg atg aag ctg gtg gtg cag gcc ggg ctt	1237		
120	Lys Val Asn Ala Asp Glu Arg Met Lys Leu Val Val Gln Ala Gly Leu			
121	335 340 345			
123	ttc cac ggc aac gag atg ctg tgc aag acg gtg tcc agc tcg gag gtg	1285		
124	Phe His Gly Asn Glu Met Leu Cys Lys Thr Val Ser Ser Ser Glu Val			
125	350 355 360			
127	agc gtg tgc tcg gag ccc gtg tgg aag cag cgg ctg gag ttc gac atc	1333		
128	Ser Val Cys Ser Glu Pro Val Trp Lys Gln Arg Leu Glu Phe Asp Ile			
129	365 370 375			

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131	aac	atc	tgc	gac	ctg	ccc	cgc	atg	gcc	cgt	ctc	tgc	ttt	gcg	ctg	tac	1381
132	Asn	Ile	Cys	Asp	Leu	Pro	Arg	Met	Ala	Arg	Leu	Cys	Phe	Ala	Leu	Tyr	
133	380					385					390					395	
135	gcc	gtg	atc	gag	aaa	gcc	aag	aag	gct	cgc	tcc	acc	aag	aag	aag	tcc	1429
136	Ala	Val	Ile	Glu	Lys	Ala	Lys	Lys	Ala	Arg	Ser	Thr	Lys	Lys	Lys	Ser	
137					400					405						410	
139	aag	aag	gcg	gac	tgc	ccc	att	gcc	tgg	gcc	aac	ctc	atg	ctg	ttt	gac	1477
140	Lys	Lys	Ala	Asp	Cys	Pro	Ile	Ala	Trp	Ala	Asn	Leu	Met	Leu	Phe	Asp	
141					415					420						425	
143	tac	aag	gac	cag	ctt	aag	acc	ggg	gaa	cgc	tgc	ctc	tac	atg	tgg	ccc	1525
144	Tyr	Lys	Asp	Gln	Leu	Lys	Thr	Gly	Glu	Arg	Cys	Leu	Tyr	Met	Trp	Pro	
145			430						435					440			
147	tcc	gtc	cca	gat	gag	aag	ggc	gag	ctg	ctg	aac	ccc	acg	ggc	act	gtg	1573
148	Ser	Val	Pro	Asp	Glu	Lys	Gly	Glu	Leu	Leu	Asn	Pro	Thr	Gly	Thr	Val	
149			445						450					455			
151	cgc	agt	aac	ccc	aac	acg	gat	agc	gcc	gct	gcc	ctg	ctc	atc	tgc	ctg	1621
152	Arg	Ser	Asn	Pro	Asn	Thr	Asp	Ser	Ala	Ala	Ala	Leu	Leu	Ile	Cys	Leu	
153	460					465					470					475	
155	ccc	gag	gtg	gcc	ccg	cac	ccc	gtg	tac	tac	ccc	gcc	ctg	gag	aag	atc	1669
156	Pro	Glu	Val	Ala	Pro	His	Pro	Val	Tyr	Tyr	Pro	Ala	Leu	Glu	Lys	Ile	
157					480					485						490	
159	ttg	gag	ctg	ggg	cga	cac	agc	gag	tgt	gtg	cat	gtc	acc	gag	gag	gag	1717
160	Leu	Glu	Leu	Gly	Arg	His	Ser	Glu	Cys	Val	His	Val	Thr	Glu	Glu	Glu	
161				495					500							505	
163	cag	ctg	cag	ctg	cgg	gaa	atc	ctg	gag	cgg	cgg	ggg	tct	ggg	gag	ctg	1765
164	Gln	Leu	Gln	Leu	Arg	Glu	Ile	Leu	Glu	Arg	Arg	Gly	Ser	Gly	Glu	Leu	
165			510						515					520			
167	tat	gag	cac	gag	aag	gac	ctg	gtg	tgg	aag	ctg	cgg	cat	gaa	gtc	cag	1813
168	Tyr	Glu	His	Glu	Lys	Asp	Leu	Val	Trp	Lys	Leu	Arg	His	Glu	Val	Gln	
169			525				530						535				
171	gag	cac	ttc	ccg	gag	gcg	cta	gcc	cgg	ctg	ctg	ctg	gtc	acc	aag	tgg	1861
172	Glu	His	Phe	Pro	Glu	Ala	Leu	Ala	Arg	Leu	Leu	Leu	Val	Thr	Lys	Trp	
173	540					545					550					555	
175	aac	aag	cat	gag	gat	gtg	gcc	cag	atg	ctc	tac	ctg	ctg	tgc	tcc	tgg	1909
176	Asn	Lys	His	Glu	Asp	Val	Ala	Gln	Met	Leu	Tyr	Leu	Leu	Cys	Ser	Trp	
177					560					565						570	
179	ccg	gag	ctg	ccc	gtc	ctg	agc	gcc	ctg	gag	ctg	cta	gac	ttc	agc	ttc	1957
180	Pro	Glu	Leu	Pro	Val	Leu	Ser	Ala	Leu	Glu	Leu	Leu	Asp	Phe	Ser	Phe	
181				575					580					585			
183	ccc	gat	tgc	cac	gta	ggc	tcc	ttc	gcc	atc	aag	tgc	ctg	cgg	aaa	ctg	2005
184	Pro	Asp	Cys	His	Val	Gly	Ser	Phe	Ala	Ile	Lys	Ser	Leu	Arg	Lys	Leu	
185			590						595					600			
187	acg	gac	gat	gag	ctg	ttc	cag	tac	ctg	ctg	cag	ctg	gtg	cag	gtg	ctc	2053
188	Thr	Asp	Asp	Glu	Leu	Phe	Gln	Tyr	Leu	Leu	Gln	Leu	Val	Gln	Val	Leu	
189			605				610							615			
191	aag	tac	gag	tcc	tac	ctg	gac	tgc	gag	ctg	acc	aaa	ttc	ctg	ctg	gac	2101
192	Lys	Tyr	Glu	Ser	Tyr	Leu	Asp	Cys	Glu	Leu	Thr	Lys	Phe	Leu	Leu	Asp	
193	620					625					630					635	
195	cgg	gcc	ctg	gcc	aac	cgc	aag	atc	ggc	cac	ttc	ctt	ttc	tgg	cac	ctc	2149

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196 Arg Ala Leu Ala Asn Arg Lys Ile Gly His Phe Leu Phe Trp His Leu
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199 cgc tcc gag atg cac gtg ccg tcg gtg gcc ctg cgc ttc ggc ctc atc 2197
200 Arg Ser Glu Met His Val Pro Ser Val Ala Leu Arg Phe Gly Leu Ile
201          655          660          665
203 ctg gag gcc tac tgc agg ggc agg acc cac cac atg aag gtg ctg atg 2245
204 Leu Glu Ala Tyr Cys Arg Gly Arg Thr His His Met Lys Val Leu Met
205          670          675          680
207 aag cag ggg gaa gca ctg agc aaa ctg aag gcc ctg aat gac ttc gtc 2293
208 Lys Gln Gly Glu Ala Leu Ser Lys Leu Lys Ala Leu Asn Asp Phe Val
209          685          690          695
211 aag ctg agc tct cag aag acc ccc aag ccc cag acc aag gag ctg atg 2341
212 Lys Leu Ser Ser Gln Lys Thr Pro Lys Pro Gln Thr Lys Glu Leu Met
213 700          705          710          715
215 cac ttg tgc atg cgg cag gag gcc tac cta gag gcc ctc tcc cac ctg 2389
216 His Leu Cys Met Arg Gln Glu Ala Tyr Leu Glu Ala Leu Ser His Leu
217          720          725          730
219 cag tcc cca ctc gac ccc agc acc ctg ctg gct gaa gtc tgc gtg gag 2437
220 Gln Ser Pro Leu Asp Pro Ser Thr Leu Leu Ala Glu Val Cys Val Glu
221          735          740          745
223 cag tgc acc ttc atg gac tcc aag atg aag ccc ctg tgg atc atg tac 2485
224 Gln Cys Thr Phe Met Asp Ser Lys Met Lys Pro Leu Trp Ile Met Tyr
225          750          755          760
227 agc aac gag gag gca ggc agc ggc ggc agc gtg ggc atc atc ttt aag 2533
228 Ser Asn Glu Glu Ala Gly Ser Gly Gly Ser Val Gly Ile Ile Phe Lys
229          765          770          775
231 aac ggg gat gac ctc cgg cag gac atg ctg acc ctg cag atg atc cag 2581
232 Asn Gly Asp Asp Leu Arg Gln Asp Met Leu Thr Leu Gln Met Ile Gln
233 780          785          790          795
235 ctc atg gac gtc ctg tgg aag cag gag ggg ctg gac ctg agg atg acc 2629
236 Leu Met Asp Val Leu Trp Lys Gln Glu Gly Leu Asp Leu Arg Met Thr
237          800          805          810
239 ccc tat ggc tgc ctc ccc acc ggg gac cgc aca ggc ctc att gag gtg 2677
240 Pro Tyr Gly Cys Leu Pro Thr Gly Asp Arg Thr Gly Leu Ile Glu Val
241          815          820          825
243 gta ctc cgt tca gac acc atc gcc aac atc caa ctc aac aag agc aac 2725
244 Val Leu Arg Ser Asp Thr Ile Ala Asn Ile Gln Leu Asn Lys Ser Asn
245          830          835          840
247 atg gca gcc aca gcc gcc ttc aac aag gat gcc ctg ctc aac tgg ctg 2773
248 Met Ala Ala Thr Ala Ala Phe Asn Lys Asp Ala Leu Leu Asn Trp Leu
249          845          850          855
251 aag tcc aag aac ccg ggg gag gcc ctg gat cga gcc att gag gag ttc 2821
252 Lys Ser Lys Asn Pro Gly Glu Ala Leu Asp Arg Ala Ile Glu Glu Phe
253 860          865          870          875
255 acc ctc tcc tgt gct ggc tat tgt gtg gcc aca tat gtg ctg ggc att 2869
256 Thr Leu Ser Cys Ala Gly Tyr Cys Val Ala Thr Tyr Val Leu Gly Ile
257          880          885          890
259 ggc gat cgg cac agc gac aac atc atg atc cga gag agt ggg cag ctg 2917
260 Gly Asp Arg His Ser Asp Asn Ile Met Ile Arg Glu Ser Gly Gln Leu

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Input Set : A:\PTO.AMC.txt

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264 Phe His Ile Asp Phe Gly His Phe Leu Gly Asn Phe Lys Thr Lys Phe
265          910          915          920
267 gga atc aac cgc gag cgt gtc cca ttc atc ctc acc tac gac ttt gtc 3013
268 Gly Ile Asn Arg Glu Arg Val Pro Phe Ile Leu Thr Tyr Asp Phe Val
269          925          930          935
271 cat gtg att cag cag ggg aag act aat aat agt gag aaa ttt gaa cgg 3061
272 His Val Ile Gln Gln Gly Lys Thr Asn Asn Ser Glu Lys Phe Glu Arg
273 940          945          950          955
275 ttc cgg ggc tac tgt gaa agg gcc tac acc atc ctg cgg cgc cac ggg 3109
276 Phe Arg Gly Tyr Cys Glu Arg Ala Tyr Thr Ile Leu Arg Arg His Gly
277          960          965          970
279 ctt ctc ttc ctc cac ctc ttt gcc ctg atg cgg gcg gca ggc ctg cct 3157
280 Leu Leu Phe Leu His Leu Phe Ala Leu Met Arg Ala Ala Gly Leu Pro
281          975          980          985
283 gag ctc agc tgc tcc aaa gac atc cag tat ctc aag gac tcc ctg gca 3205
284 Glu Leu Ser Cys Ser Lys Asp Ile Gln Tyr Leu Lys Asp Ser Leu Ala
285          990          995          1000
287 ctg ggg aaa aca gag gag gag gca ctg aag cac ttc cga gtg aag ttt 3253
288 Leu Gly Lys Thr Glu Glu Glu Ala Leu Lys His Phe Arg Val Lys Phe
289          1005          1010          1015
291 aac gaa gcc ctc cgt gag agc tgg aaa acc aaa gtg aac tgg ctg gcc 3301
292 Asn Glu Ala Leu Arg Glu Ser Trp Lys Thr Lys Val Asn Trp Leu Ala
293 1020          1025          1030          1035
295 cac aac gtg tcc aaa gac aac agg cag tag tggctcctcc cagccctggg 3351
296 His Asn Val Ser Lys Asp Asn Arg Gln
297          1040
299 cccaagagga ggcggctgcg ggtcgtgggg accaagcaca ttggctcctaa aggggctgaa 3411
301 gagcctgaac tgcacctaac gggaaagaac cgacatggct gccttttggt tacactgggt 3471
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305 tcatgcagcg gcggtgctgg gcccccgag gctgcacctg gctctcggct gaggattgtc 3591
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311 gcctactgtc cgacaggatg ccttgatcct cgtgcgaccc accctgtgta tcctccctag 3771
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320 <212> TYPE: DNA
321 <213> ORGANISM: Artificial Sequence
323 <220> FEATURE:
324 <223> OTHER INFORMATION: PCR Primer
326 <400> SEQUENCE: 2
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330 <210> SEQ ID NO: 3
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332 <212> TYPE: DNA
333 <213> ORGANISM: Artificial Sequence

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VERIFICATION SUMMARY

DATE: 03/12/2002

PATENT APPLICATION: US/10/049,743

TIME: 17:31:11

Input Set : A:\PTO.AMC.txt

Output Set: N:\CRF3\03122002\J049743.raw

L:10 M:270 C: Current Application Number differs, Replaced Application Number

L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date